REMARKS

Claims 1-14 are pending.

The specification has been amended to remove a translation error at page 16, line 24. Specifically, the term "film" has been replaced with the term "layer." As evidence that this was a translation error of the priority parent application PCT/JP2004/004222, Applicants enclose a Declaration by Mr. Tadao Nishikage.

Claim 1 has been amended to clarify that the reflectance and standard deviation values relate to the protective film. Claims 2 and 12 have been amended for clarity.

No new matter has been added by way of the above-amendment.

I. Drawings

Applicants respectfully request that the Examiner acknowledges receipt of the drawings in the next communication.

II. Issues Under 35 U.S.C. § 112, Second Paragraph

Claims 1-14 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite. Applicants respectfully traverse the rejection.

II – A.

The Examiner objects to the phrase "having a reflectance of 0.5% or smaller...S of 0.3 or smaller." The Examiner is unclear which film/layer this phrase is describing. In response, Applicants have amended claim 1 to clarify that the film/layer "having a reflectance of 0.5% or smaller...S of 0.3 or smaller" is the "protective film."

It is clear from the description of the examples and the comparative examples in the present specification that the reflectance values and the standard deviation values as claimed

relate to measurements of the protective film and not the antireflection layer (or other layer/film). Specifically, at page 27, the present specification recites:

> The properties of **a protective film** for polarizing plates obtained in Example and Comparative Examples were obtained in accordance with the following methods...
> (4) Reflectance at wavelength of 550 nm...
> (5) Standard deviation... (Emphasis added).

Accordingly, the amendment to claim 1 is proper and has support in the specification.

II – B.

The Examiner finds claim 2 to be confusing. Specifically, the Examiner objects to claim 2 for reciting the phrase "while the thermoplastic film is brought into contact with a thermally conductive material having a surface temperature higher than [a glass transition temperature of the thermoplastic film - 130°C] and lower than the glass transition temperature of the thermoplastic film." In response, Applicants have amended claim 2 as follows:

> 2. A protective film for polarizing plates according to Claim 1, wherein the antireflection layer is a layer formed at least on one face of the thermoplastic film while the thermoplastic film is brought into contact with a thermally conductive material having a surface temperature higher than **X and lower than Y, wherein**
>
> **X = Tg (glass transition temperature of the thermoplastic film) - 130°C and**
>
> **Y = Tg**
>
> ~~**[a glass transition temperature of the thermoplastic film - 130°C] and lower than the glass transition temperature of the thermoplastic film**~~.

As such, Applicants respectfully submit that claim 2 clearly recites the surface temperature range of the thermally conductive material.

II – C.

The Examiner objects to claim 12 for reciting the term "based" in the phrase "norbornene-based polymer." In response, Applicants have amended claim 12 to recite a "polymer having a norbornene structure."

Based on the above-amendments and comments, Applicants respectfully submit that the claims particularly point out and distinctly claim the subject matter which Applicants regard as the invention. As such, claims 1-14 satisfy the requirements of 35 USC 112, second paragraph and withdrawal of the rejection is respectfully requested.

[III] Prior Art Based Issues

The following Rejections are currently pending:

A. Claims 1-6, 8-11, 13 and 14 are rejected under 35 U.S.C. § 102(b) as being anticipated by Takematsu et al (US 6,207,263); and

B. Claims 7 and 12 are rejected under 35 U.S.C. § 103(a) as being obvious over Takematsu et al. in view of Nakamura et al. (US 2001/0035929).

Applicants respectfully traverse Rejection A and Rejection B.

Inventive claim 1 is drawn to a protective film for polarizing plates which comprises a thermoplastic film having a **saturated water absorption smaller than 0.05% by weight** and wherein the reflectance of the protective film is 0.5% or smaller at a wavelength of 550 nm and has a standard deviation of S of 0.3 or smaller. The present inventors have surprisingly found that:

> When the saturated water absorption is 0.05% by weight or greater, the thickness of the formed antireflection layer fluctuates, and it is difficult that the standard deviation of S obtained in accordance with relation (1) described later is made 0.3 or smaller.

The present inventors have found that in the heat treatment in the process of film fabrication or when treatment under vacuum is necessary for forming the anti-reflection layer by for example, a sputtering process, the water contained within the thermoplastic film is released from the surface of the film and the degree of releasing the water is not even throughout the surface. The unevenness in releasing the water affects the growth rate of the layers in the process of forming the anti-reflection layers which causes the fluctuation of the thickness of the anti-reflection layers which results in the increase in the standard deviation as presently claimed.

These advantages of the inventive protective film are neither taught nor suggested by Takamatsu et al. or Nakamura et al.

On this matter, the Examiner relies on Takamatsu et al. and states in the last paragraph on page 4 of the present Office Action as follows:

> With regards to the limitations of the photoelastic coefficient and the saturated water absorption for the thermoplastic film and the limitations of the reflectance and standard deviation, the Examiner takes the position that such property limitations must be inherent in the antireflection laminate taught by Takematsu et al. given that the structure of the laminate as well as the chemical composition of each layer as taught by Takematsu et al. and that of the claimed invention are identical.

Regarding Rejection A which is an anticipation rejection, to support an anticipation rejection based upon inherency, an Examiner must provide factual and technical grounds establishing that the inherent feature *necessarily* flows from the teachings of the prior art. See *Ex parte Levy* 17 USPQ2d 1461 (BOPAI 1990); see also *In re Oelrich*, 212 USPQ 323 (CCPA 1981) holding that inherency *must* flow as a necessary conclusion from the prior art, not simply a possible one. Regarding Rejection B, which is an obviousness rejection, it is noted that MPEP 2112(III) sanctions the use of an obviousness rejection which relies on an inherent feature of the prior art. However, MPEP 2112(IV) makes it perfectly clear that whether the rejection is based on 35 USC 102 or 103, the inherent feature *must* be present in the device for the rejection to be tenable. The inherency *must* flow as a necessary conclusion from the prior art, and not simply be a possible one.

Applicants respectfully submit that the limitation of the saturated water absorption for the thermoplastic film of the presently claimed invention is not inherent in the antireflection laminate taught by Takematsu et al nor in the laminate taught by Nakamura et al. The saturated water absorption depends on the density or chemical composition of the polymer used, and particularly the content of hydrophilic group(s). Neither Takematsu et al. nor Nakamura et al. teach or suggest either the limitation of saturated water absorption or the content of a group exhibiting polarity which might have a relation with the limitation of saturated water absorption.

For instance, Takematsu et al. teach in Examples 1, 3 and 4 and in Comparative Examples 1-4 the use of polyethylene terephthalate (PET). However, as shown in Comparative Example 2 on pages 30-31 of the present specification, the PET layer was found to have a saturated water absorption of 0.8% by weight which is outside the inventive range <0.05% by weight. Also, Takematsu et al. teach in Example 2 the use of triacetyl cellulose and Nakamura et al. exclusively use triacetyl cellulose in all of the examples (both inventive and comparative). However, as shown in Comparative Example 1 on pages 29-31 of the present specification, the triacetyl cellulose was found to have a saturated water absorption of 4.5% by weight which is outside the inventive range of < 0.05% by weight.

Applicants respectfully submit that without further information from Takematsu et al. and Nakamura et al., the above-described data of the present specification is strong evidence that none of the exemplified embodiments of Takematsu et al. and Nakamura et al. inherently have a saturated water absorption within the inventive range of < 0.05% by weight.

Takematsu et. al. and Nakamura et al. do not teach or suggest either the limitation of saturated water absorption or the content of a group exhibiting polarity which might have a relation with the limitation of saturated water absorption. Without defining such limitations, the purpose of the presently claimed invention cannot be attained nor would it be obvious from these references.

Now turning to the broad description of Takematsu et al. and Nakamura et al., both these references teach categories of polymers which can be used to replace the exemplified polymers

(PET and triacetyl cellulose), but there is no teaching or suggestion to choose within these categories of polymers only those polymers having the inventive range of the saturated water absorption of < 0.05% by weight.

Takematsu et al. teach that:

> thermoplastic resins can be used, such as polyester, polyamide, polyimide, polypropylene, polymethylpentene, polyvinyl chloride, polyvinyl acetal, polymethyl methacrylate, polycarbonate, and polyurethane.

Nakamura et al. teach that:

> Examples of polymers which form a plastic film include cellulose esters (e.g., triacetyl cellulose, diacetyl cellulose), polyamides, polycarbonates, polyesters (e.g., polyethylene terephthalate, polyethylene naphthalate), polystyrenes, and polyolefins (e.g., ARTON (trade name, made by JSR Co., Ltd., material name: norbornene-series polyolefin), ZEONEX (trade name, made by Nippon Zeon Co., Ltd., material name: norbornene-series polyolefin)).

Again, there is no teaching or suggestion to choose within these categories of polymers only those polymers having the inventive range of the saturated water absorption of < 0.05% by weight

As further evidence that the artisan would not find it obvious from these broad lists of polymers to choose only polymers having a saturated water absorption falling within the inventive range, Applicants enclose herewith the following References 1), 2) and 3) which contain data of water absorption or saturated water absorption:

1) Yoshiharu Wada: A New Transparent Polymer with Excellent Heat Resistance, "ARTON", FUNCTION & MATERIALS, (8) p16-22, 20 (2000);
2) Koji Minami: Cycloolefin Polymer, FUNCTION & MATERIALS, (8) p23-25 20 (2000); and
3) Mitsuo Huzii et al.: Properties and Uses of High Polymers (I), p292-293, 298-299 (1967).

In Table 2 on page 17 of 1), the saturated water absorption of "ARTON" [trade name of a kind of norbonene polymer, also cited in line 7 in [0056] of Nakamura et al., is disclosed as having a value of 0.4. In Table 1 on page 25 of 2), the water absorption of <0.01 for ZEONEX 480R [trade name of a kind of norbonene polymer, "ZEONEX " is also cited in line 9 in [0056] of Nakamura et al.] is shown. In the same table, the water absorption for PC (polycarbonate resin) of optical grade and PMMA are disclosed to be 0.15 and 0.3, respectively. In Table 2.2.32 on page 292 bridging to page 293 of 3), water absorption data of various types of vinyl chloride resins are shown. The values fall within a range of 0.05 to 1.0% depending on the types of the resins. In Table 2.2.39 on page 298 bridging to page 299 of 3), the water absorption data of <0.1% for a vinylidene chloride resin is shown.

It is clear from the teachings in References 1, 2 and 3, that even when polymers are from the same series, the property relating to absorption of water of the polymers may be different. For example, both the ARTON polymer and ZEONEX polymers are taught by Nakamura et al. to be equivalents in the above-reproduced section of Nakamura et al. and yet both these norbornene series polymers have very different water absorption rates. Stated differently, the saturated water absorption as claimed in claim 1 is not necessarily present in the antireflection laminate taught by Takematsu et al. and Nakamura et al. as is required by a finding of anticipation or obviousness based on an inherent feature.

Furthermore, the examples in the present specification show that the use of a polymer having a saturated water absorption falling within the inventive range of < 0.05% by weight has unexpectedly uniform reflectance (as measured by the standard deviation value) over the closest operative embodiments (triacetyl cellulose and PET) of Takematsu et al.[1] and Nakamura et al.

[1] Applicants note that there are some differences between Comparative Example 2 of the present application and the Examples of Takematsu et al.. However, Applicants respectfully submit that Comparative Example 2 is sufficiently close to the Examples of Takematsu et al. to be used as comparative data. Furthermore, it would be difficult to reproduce the Examples of Takematsu et al. for comparison, because the hard coat layers in all of the Examples disclosed by Takematsu et al. have specific irregularities on the surface in contact with the intermediate refractive index layer, which is difficult to reproduce. It was found by the present inventors that the standard deviation of reflectance cannot be reduced without reducing the fluctuations in thickness of each of the layers constituting the anti-reflection layer. In the anti-reflection film disclosed in Examples of Takematsu et al., the anti-reflection layers are formed on hard coat layers having surface irregularities and therefore it would be difficult to obtain evenness in

which have a saturated water absorption falling outside the inventive range of < 0.05% by weight as shown in Table 1, which is now reproduced (in part) for the Examiner's convenience:

Table 1[2]

	Example 1	Comparative Example 1	Comparative Example 2
Substrate film			
thermoplastic resin	norbornene-based polymer	triacetyl-cellulose	polyethylene terephthalate
saturated water absorption (% by weight)	0.01	4.5	0.8
Properties of protective film for polarizing plates			
reflectance at wavelength of 550 nm (%)	0.4	0.5	0.5
standard deviation	0.20	0.65	0.50

Clearly this increase in the uniformity of the reflectance using the inventive polymer having a saturated water absorption falling within the range of < 0.05% by weight would not be expected based on the teachings of Takematsu et al. and Nakamura et al. As such, even assuming

the thickness of the layers constituting the anti-reflection layer which would inevitably lead to the increase of the standard deviation of reflectance.

[2] It is noted that the method for determining the saturated water absorption values in references 1, 2 and 3 (discussed above) is slightly different than the method for determining the saturated water absorption values in the present specification. In the examples of the present specification the weight increase after immersion in water for 1 week is measured, whereas in ASTM D570 used in the references 1, 2 and 3, the samples are immersed in water for 24 hours, at which time the specimens are removed from water, wiped free of water with a dry cloth, weighed, and then replaced in the water until the end of the first week. However, the skilled artisan would understand that this difference can be neglected in plastics having low water absorption which exhibit very small changes in the water absorption with time after the initial 24 hour immersion.

arguendo that a *prima facie* case of obviousness were to exist, the unexpected nature of the advantages of the present invention would overcome the *prima facie* case.

Based on the foregoing, the inventive protective film and its advantages are neither taught nor fairly suggested by Takematsu et al. and Nakamura et al, and as such, withdrawal of Rejection A and Rejection B is respectfully requested.

Conclusion

Entry of the above amendments is earnestly solicited. An early and favorable first action on the merits is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Garth M. Dahlen, Ph.D., Esq., Reg. No. 43,575 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: January 3, 2008

Respectfully submitted,

By

Garth M. Dahlen, Ph.D.
Registration No.: 43,575
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant

Enclosures:

1) Declaration by Mr. Tadao Nishikage

2) Yoshiharu Wada: A New Transparent Polymer with Excellent Heat Resistance, "ARTON", FUNCTION & MATERIALS, (8) p16-22, **20** (2000);

3) Koji Minami: Cycloolefin Polymer, FUNCTION & MATERIALS, (8) p23-25 **20** (2000); and

4) Mitsuo Huzii et al.: Properties and Uses of High Polymers (I), p292-293, 298-299 (1967).